SUPPORT FOR THE AMENDMENTS

The amendments to the claims are supported by Figure 1 and Example 3 of the present specification. No new matter is believed to have been added to this application by these amendments.

REMARKS

Claims 17-20 and 22-25 remain pending in this application. Favorable reconsideration is respectfully requested.

The objection to the claims is believed to be obviated by the amendments submitted above. The word "Claim" has been replaced with --claim--. Accordingly, withdrawal of this objection is respectfully requested.

The rejection of Claims 16, 18-19, 21, and 23-24 under 35 U.S.C. §112, first paragraph, for lack of written description, is believed to be obviated by the amendments submitted above. Claims 16 and 21 have been canceled, and claims 18 and 23 depend from claims 17 and 22, respectively. Accordingly, withdrawal of this ground of rejection is respectfully requested.

The rejection of the claims under 35 U.S.C. §112, first paragraph, on the grounds that the specification is not enabling is respectfully traversed.

The claimed bacterium can grow in a medium containing acetic acid as a carbon source. The claimed bacterium is different from the other acetic acid bacteria in that (1) the acetic acid production from ethanol was weak, (2) the bacterium could grow in the presence of 30% glucose, and (3) the bacterium did show acid production from ethanol. See page 20, lines 1-18 of the present specification. Besides these differences, properties to distinguish the

claimed bacterium are described in Table 9 in page 19 of the present specification. Therefore, one skilled in the art can isolate the claimed bacterium by using the medium containing acetic acid as a carbon source and the medium containing 30% glucose, further in combination with the identification of the properties of the bacterium, where those properties characterize the claimed bacterium.

The Examiner has stated that is unclear whether the four disclosed microbial strains from *Zucharibacter floricola* represent a broad spectrum from the genus or that they represent the claimed family *Acetobacteracea* located between *Gluconobacter oxydans subsp Oxydans* and *Acetobacter aceti*. The Examiner has also stated that the identification of a single bacterial strain P528 is not a reasonable representative for the whole genus or *Asaia ethanolifaciens* or *Asaia*. In addition, the Examiner has also stated that the phenotype of one strain from a species of a genus of thousands of bacteria is not representative of the genus as a whole, let alone the family of *Acetobacteracea* located between *Acetobacter methanolicus* and *Acetobacter pasteurianus*.

In response, Applicants note that a bacterium in the amended claims 17-19 and 22-24 is defined not only by an evolutionary distance calculated by CLUSTAL W based on the 165 RNA gene nucleotide sequences but also by biochemical and physiological characteristics such as an ability to produce xylitol or D-xylulose from glucose, quinone type and GC content of DNA. So long as a bacterium has the characteristics as recited in the amended claims, the bacterium is sufficient as a bacterium to be used in practicing the claimed method. Therefore, it does not matter whether the strains used in the present Examples represent the genus and the family.

The Examiner has stated that the instant specification fails to provide sufficient teachings regarding to a reproducible screening process capable of identifying large numbers of bacterial strains having the desired characteristics belonging to the claimed family representing numerous groups of related species or genera.

In response, Applicants note that as mentioned above, one skilled in the art is capable of screening the claimed bacterium based on the present specification and the knowledge in the art.

Based on the foregoing, the claims satisfy the written description and enablement requirements of 35 U.S.C. §112, first paragraph. Accordingly, withdrawal of these grounds of rejection is respectfully requested.

The rejection of Claims 16 and 21 under 35 U.S.C. §112, second paragraph, is respectfully traversed.

Claims 16 and 21 have been deleted. In the amended claims 17-20 and 22-25, a bacterium is defined by evolutionary distances, calculated by CLUSTAL W based on the 16S rRNA gene nucleotide sequences, with respect to two specific bacteria. Thus, parameters, criteria and soft ware program, which define a bacterium in the amended claims 17-20 and 22-25, are clearly specified. Therefore, the claims are definite within the meaning of 35 U.S.C. §112, second paragraph. Accordingly, withdrawal of this ground of rejection is respectfully requested.

The rejection of claims 16-25 for obviousness-type double patenting over U.S. patent No. 6,335,177 is obviated by the terminal disclaimer over that patent submitted herewith. Accordingly, withdrawal of this ground of rejection is respectfully requested.

Applicants submit that the present application is in condition for allowance. Early notice to this effect is earnestly solicited.

Respectfully submitted,

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211110US0DIV
SERIAL NO.: 09/902,693

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Serial No.: 09/902,693
Amendment Filed On: HEREWITH

IN THE CLAIMS

Claims 16 and 21 (Cancelled).

--17. (Amended) The method [according to Claim 16] for producing xylitol or D-xylulose, which comprises:

culturing a bacterium having an ability to produce xylitol or D-xylulose from glucose in a suitable medium to accumulate xylitol or D-xylulose in the medium, and

collecting xylitol or D-xylulose from the medium,

wherein an evolutionary distance of the bacterium, calculated by CLUSTAL W based on the 16S rRNA gene nucleotide sequences, which respect to *Acetobacter methanolicus* is not more than evolutionary distance between *Acetobacter methanolicus* and *Acetobacter pasteurianus,* and an evolutionary distance of the bacterium with respect to *Acetobacter pasteurianus* is not more than an evolutionary distance between *Acetobacter methanolicus* and *Acetobacter pasteurianus*, and

wherein the bacterium has the following characteristics:

(a) an ability to produce xylitol or D-xylulose from glucose;

(b) quinone type: ubiquinone-10;

(c) GC content of DNA: about 56 to 57%;

(d) an ability to produce acetic acid from ethanol; and

(e) grows in the presence of 30% glucose.

18. (Amended) [A] The method according to claim 17, [for producing xylitol or D-xylulose, which comprises:

culturing a bacterium belonging to the genus *Asaia* which has an ability to produce xylitol or D-xylulose from glucose in a suitable medium to accumulate xylitol or D-xylulose in the medium, and

collecting xylitol or D-xylulose from the medium] wherein the bacterium belongs to the genus *Asaia*.

19. (Amended) The method according to [Claim] claim 18, wherein the bacterium belongs to *Asaia ethanolifaciens*.

20. (Amended) The method according to [Claim] claim 19, wherein the bacterium has a 16S rRNA gene comprising the nucleotide sequence of SEQ ID NO: 1.

22. (Amended) [The] A method [according to Claim 21] for producing xylitol or D-xylulose, which comprises:

culturing a bacterium having an ability to produce xylitol or D-xylulose from glucose in a suitable medium to accumulate xylitol or D-xylulose in the medium, and

wherein an evolutionary distance of the bacterium, calculated by CLUSTAL W based on the 16S rRNA gene nucleotide sequences, with respect to *Gluconobacter oxydans* subsp. *oxydans* is not more than an evolutionary distance between *Gluconobacter oxydans* subsp. *oxydans* and *Acetobacter aceti*, and an evolutionary distance of the bacterium with respect to *Acetobacter aceti* is not more than an evolutionary distance between *Gluconobacter oxydans* subsp. *oxydans* and *Acetobacter aceti*, and

wherein the bacterium has the following characteristics:

(a) an ability to produce xylitol or D-xylulose from glucose;

(b) quinone type: ubiquinone-10;

(c) GC content of DNA: about 52 to 53%;

(d) an weak ability to produce acetic acid from ethanol; and

(e) grows in the presence of 30% glucose.

23. (Amended) [A] The method according to claim 22, [for producing xylitol or D-xylulose, which comprises:

culturing a bacterium belonging to the genus *zucharibacter* which has an ability to produce xylitol or D-xylulose from glucose in a suitable medium to accumulate xylitol or D-xylulose from the medium, and

collecting xylitol or D-xylulose from the medium] wherein the bacterium belongs to the genus *Zucharibacteri*.

24. (Amended) The method according to [Claim] claim 23, wherein the bacterium belongs to *Zucharibacter floricola*.

25. (Amended) The method according to [Claim] claim 24, wherein the bacterium has a 16S rRNA gene comprising the nucleotide sequence of any one of SEQ ID Nos: 2, 3, 4 or 5.--